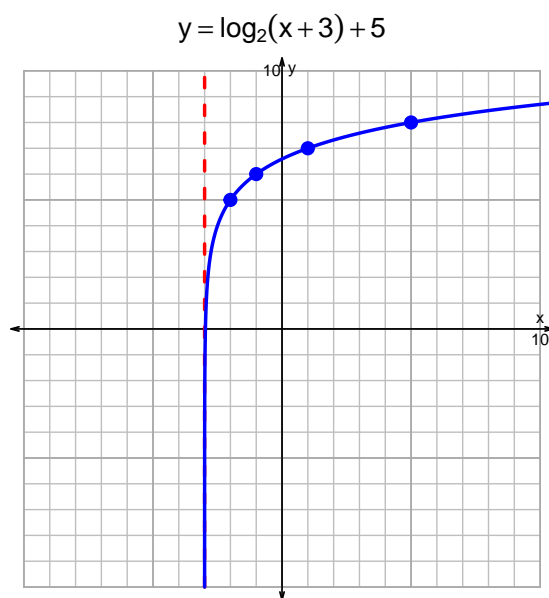
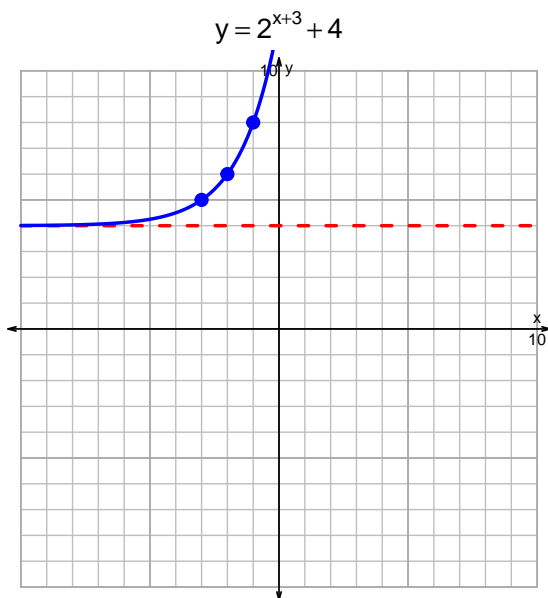


Name: _____

Date: _____

s18QUIZ: EXP LOG (SLTN v269)

1. Graph $y = 2^{x+3} + 4$ and $y = \log_2(x + 3) + 5$ on the grids below. Also, draw any asymptotes with dotted lines.



2. Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression.

$$-13 = \left(\frac{-7}{5}\right) \cdot 10^{-4t/3}$$

Divide both sides by $\frac{-7}{5}$.

$$\frac{13 \cdot 5}{7} = 10^{-4t/3}$$

Take log, base 10, of both sides.

$$\log_{10} \left(\frac{13 \cdot 5}{7} \right) = \frac{-4t}{3}$$

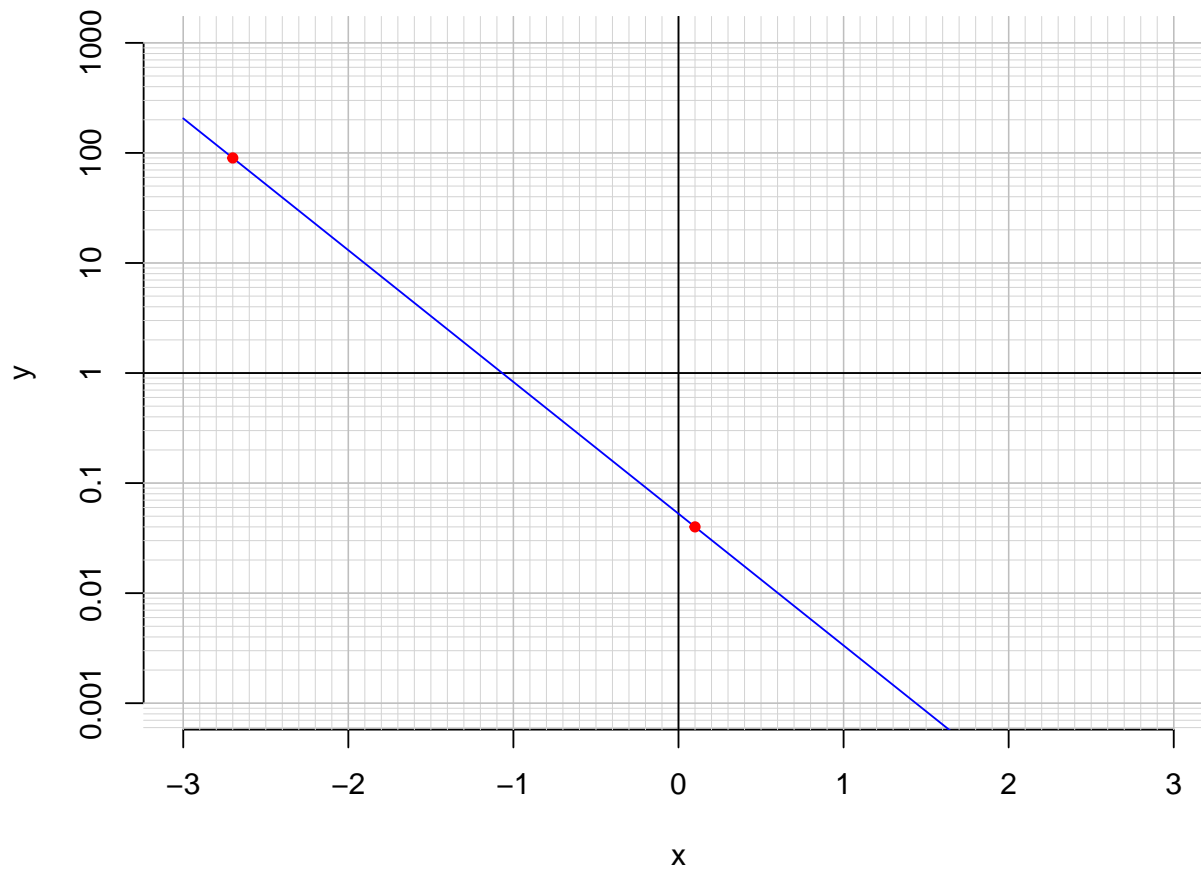
Divide both sides by $\frac{-4}{3}$.

$$\frac{-3}{4} \cdot \log_{10} \left(\frac{13 \cdot 5}{7} \right) = t$$

Switch sides.

$$t = \frac{-3}{4} \cdot \log_{10} \left(\frac{13 \cdot 5}{7} \right)$$

3. An exponential function $f(x) = 0.0527 \cdot e^{-2.76x}$ is graphed below on a semi-log plot.



- a. Using the plot above, evaluate $f(0.1)$.

$$f(0.1) = 0.04$$

- b. Express $f^{-1}(x)$, the inverse of f .

$$f^{-1}(x) = \frac{-1}{2.76} \cdot \ln\left(\frac{x}{0.0527}\right)$$

- c. Using the plot above, evaluate $f^{-1}(90)$.

$$f^{-1}(90) = -2.7$$